

PART 1 - GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM C 272	(1996) Standard Test Method for Water Absorption of Core Materials for Structural Sandwich Constructions
ASTM C 578	(1995) Rigid, Cellular Polystyrene Thermal Insulation
ASTM C 612	(1993) Mineral Fiber Block and Board Thermal Insulation
ASTM C 930	(1992) Potential Health and Safety Concerns Associated with Thermal Insulation Materials and Accessories
ASTM D 1621	(1994) Compressive Properties of Rigid Cellular Plastics
ASTM D 3833	(1996) Water Vapor Transmission of Pressure- Sensitive Tapes
ASTM E 84	(1998) Surface Burning Characteristics of Building Materials
ASTM E 136	Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750°C

CODE OF FEDERAL REGULATIONS (CFR)

29 CFR 1910.134	Respiratory Protection
-----------------	------------------------

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 54	(1996) National Fuel Gas Code
NFPA 70	(1999) National Electrical Code

1.2 SUBMITTALS

Submit the following in accordance with Section 01330, "Submittal Procedures."

1.2.1 SD-03, Product Data

- a. Block or board insulation

1.3 DELIVERY, STORAGE, AND HANDLING

1.3.1 Delivery

Deliver materials to the site in original sealed wrapping bearing manufacturer's name and brand designation, specification number, type, grade, R- value, and class. Store and handle to protect from damage. Do not allow insulation materials to become wet, soiled, crushed, or covered with ice or snow. Comply with manufacturer's recommendations for handling, storing, and protecting of materials before and during installation.

1.3.2 Storage

Inspect materials delivered to the site for damage; unload and store out of weather in manufacturer's original packaging. Store only in dry locations, not subject to open flames or sparks, and easily accessible for inspection and handling.

1.4 SAFETY PRECAUTIONS

1.4.1 Respirators

Provide installers with dust/ mist respirators, training in their use, and protective clothing, all approved by National Institute for Occupational Safety and Health (NIOSH)/ Mine Safety and Health Administration (MSHA) in accordance with 29 CFR 1910.134.

1.4.2 Other Safety Considerations

Consider safety concerns and measures as outlined in ASTM C 930.

PART 2 - PRODUCTS

2.1 BLOCK OR BOARD INSULATION

Provide only thermal insulating materials recommended by manufacturer for type of application indicated. Provide board or block thermal insulation conforming to the following standards and the physical properties listed below:

2.1.2 Fire Protection Requirement

- a. Flame spread index of 100 or less when tested in accordance with ASTM E 84.
- b. Smoke developed index of 200 or less when tested in accordance with ASTM E 84.

2.1.3 Other Material Properties

Provide thermal insulating materials with the following properties:

- a. Rigid cellular plastics: Compressive Resistance at Yield: Not less than 25 pounds per square inch (psi) when measured according to ASTM D 1621.
- b. Water Absorption: Not more than 0.18 percent by total immersion, by volume, when measured according to ASTM C 272.

2.1.4 Recycled Materials

Provide thermal insulation containing recycled materials to the extent practicable, provided that the material meets all other requirements of this section. The minimum required recycled material contents (by weight, not volume) are:

Polyisocyanurate/ Polyurethane:	9 percent
Phenolic Rigid Foam :	5 percent
Perlite Board:	23 percent

2.15 Prohibited Materials

Do not provide materials containing more than one percent of asbestos.

2.2 PRESSURE SENSITIVE TAPE

As recommended by manufacturer of vapor retarder and having a water vapor permeance rating of 5.72 x 10⁻⁸ g/ Pa. s. m² one perm or less when tested in accordance with ASTM D 3833M ASTM D 3833.

2.3 ACCESSORIES

2.3.1 Adhesive

As recommended by insulation manufacturer.

2.3.2 Mechanical Fasteners

Corrosion resistant fasteners as recommended by the insulation manufacturer.

PART 3 - EXECUTION

3.1 PREPARATION

3.1.1 Blocking Around Heat Producing Devices

Unless using insulation board that passes ASTM E 136 in addition to the requirements in Part 2, install non-combustible blocking around heat producing devices to provide the following clearances:

a. Recessed lighting fixtures, including wiring compartments, ballasts, and other heat producing devices, unless certified for installation surrounded by insulation: 3 inches from outside face of fixtures and devices or as required by NFPA 70 and, if insulation is to be placed above fixture or device, 24 inches above fixture.

3.2 INSTALLATION

3.2.1 Insulation Board

Install and handle insulation in accordance with the manufacturer's installation instructions. Keep material dry and free of extraneous materials. Observe safe work practices.

3.2.2 Electrical Wiring

Do not install insulation in a manner that would sandwich electrical wiring between two layers of insulation.

3.2.3 Cold Climate Requirement

Place insulation to the outside of pipes.

3.2.4 Continuity of Insulation

Butt tightly against adjoining boards, studs, rafters, joists, sill plates, headers and obstructions. Provide continuity and integrity of insulation at corners, wall to ceiling joint, roof, and floor. Avoid creating any thermal bridges or voids.

3.3 INSTALLATION ON WALLS

3.3.1 Adhesive Attachment to Concrete Walls

Apply adhesive to wall and completely cover wall with insulation.

- a. As recommended by the insulation manufacturer.
- b. Butt all edges of insulation and seal edges with tape.

Install perimeter thermal insulation where heated spaces are adjacent to exterior walls or slab edges in slab-on-grade or floating-slab construction.

3.3.2 Manufacturer's Instructions

Install, attach, tape edges, provide vapor retarder and other requirements such as protection against vermin, insects, damage during construction as recommended in manufacturer's instructions.

3.3.3 Insulation on Vertical Surfaces

Install thermal insulation as indicated below grade. Fasten insulation with adhesive or mechanical fasteners.

3.3.4 Protection of Insulation

Protect insulation on vertical surfaces from damage during construction and back filling. Do not leave installed vertical insulation unprotected overnight.

END OF SECTION